

University of Groningen

Sprouted All Around

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Published in:
Housing Estates in Europe

DOI:
[10.1007/978-3-319-92813-5_7](https://doi.org/10.1007/978-3-319-92813-5_7)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2018

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Costa, R., & de Valk, H. A. G. (2018). Sprouted All Around: The Emergence and Evolution of Housing Estates in Brussels, Belgium. In D. Hess, T. Tammaru, & M. van Ham (Eds.), *Housing Estates in Europe* (pp. 145-166). (The Urban Book Series). Springer. https://doi.org/10.1007/978-3-319-92813-5_7

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Chapter 7

Sprouted All Around: The Emergence and Evolution of Housing Estates in Brussels, Belgium



Rafael Costa and Helga de Valk

Abstract The purpose of this study is to investigate the socioeconomic evolution of large housing estates in Brussels, Belgium, in particular their role in shaping residential segregation in the city. As in many European countries, modernist and functionalist ideas of the mid-twentieth century led to the raising of large housing estates in Brussels, in an attempt to offer middle-class households affordable yet modern and comfortable dwellings. However, contrary to other countries, the development in Belgium was marked by general housing policies that promoted homeownership, with limited investment in social housing, and a lack of laws and political vision related to spatial planning. Whereas some public ensembles were conceived by modernist architects, most of Brussels' large housing estates were built by private contractors in peripheral neighbourhoods and were aimed at homeownership of the lower middle class. In this chapter, we first present a brief historical perspective of the policies, ideologies and territorial processes that made it possible for housing estates to develop and spread in Brussels. Next, we analyse how large housing estates evolved since the 1990s in terms of socioeconomic composition and the role they play in segregation. We finally discuss the challenges, current perspectives and political awareness with respect to large housing estate. Our findings point out that Brussels' housing estates are spatially scattered and have only a limited impact on the concentration of deprivation and foreign nationals. However, the trends identified in our study indicate that housing estates can become important socioeconomic fractures at the local level.

Keywords Brussels • Belgium • Housing estates • Public housing
Housing policies • Residential segregation

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D. B. Hess et al. (eds.), *Housing Estates in Europe*, The Urban Book Series,
https://doi.org/10.1007/978-3-319-92813-5_7

7.1 Introduction

As in many European countries, modernist and functionalist ideas of the mid-twentieth century led to the raising of large housing estates in Brussels, in an attempt to offer middle-class households affordable yet modern and comfortable dwellings. However, contrary to other countries, the development in Belgium was marked by general housing policies that promote homeownership, with limited investment in social housing, and a lack of laws and political vision related to spatial planning (De Decker 2008). Whereas some public ensembles were conceived by modernist architects, most of Brussels' large housing estates were built by private developers in peripheral, green neighbourhoods and were aimed at homeownership of the lower middle class (Broes and Dehaene 2016).

The purpose of this study is to investigate the socioeconomic evolution of large housing estates in Brussels, in particular their role in shaping residential segregation and social mix in the city.

These housing estates house large numbers of people in extensive areas and as such they can have a considerable effect in shaping ethnic and socioeconomic segregation in the city. If they are deteriorating over time in terms of living standards and housing quality, they might increasingly concentrate deprived households, including newly arrived migrants. In addition, inasmuch as people are socialised in large and deprived apartment complexes, large housing estates may also produce cumulative disadvantages over their residents' life courses (Andersen 2002; Phillips 2007). So far there is limited knowledge on the situation of large housing estates in Brussels, and despite their potential negative effects, no systematic study to date has investigated the impact of housing estates on socioeconomic and ethnic disparities in this city.

In this chapter, we first present a brief historical perspective of the policies, ideologies and territorial processes that made it possible for large housing estates to develop and spread in Brussels (Sect. 7.2). In the third section, we make an inventory of housing estates in Brussels and discuss their location and physical layout. The fourth section analyses how estates evolved in Brussels since the 1990s in terms of socioeconomic composition and the role they play in segregation patterns. Section 7.5 discusses the challenges, current perspectives and political awareness in Brussels with respect to large housing estates.

7.2 Public Policies and Large Housing Estates: The Belgian Particularity

In many European cities, housing production in the mid-twentieth century was marked by the construction of vast ensembles of mid- and high-rise apartment buildings. These 'large housing estates', inspired by modernist and functionalist ideas, were often conceived to meet the housing shortage after World War II and to

accommodate an increasing urban population (Musterd and van Kempen 2005; Wassenberg et al. 2004). Moreover, they were designed in many cases as an affordable social housing alternative provided by the welfare state (Tammaru et al. 2016).

This general pattern observed across Europe was, however, not applicable to Belgian cities. Large housing estates emerged in cities such as Brussels, Antwerp and Liege in a context of population decline, urban sprawl, lack of spatial planning and heavy state promotion of homeownership.

Throughout the twentieth century, Belgian housing policy was based on the promotion of homeownership (De Decker 2008). This was consolidated in the post-war period by the De Taeye act, passed in 1948 (Theunis 2006). With this act, low- and high-income households could profit from grants, tax benefits and loans to buy or to build their own house (Grosjean 2010). In the absence of spatial planning restrictions, households were able to buy land in the city fringes and rural areas and build their own detached house (De Decker 2008; Kesteloot and Cortie 1998). The production of single-family houses became an important instrument of the Fordist economy: the increasing demand for new housing, financed by the state's homeownership policies, nourished economic growth via the building industry (Kesteloot and Van der Haegen 1997).

Homeownership policies resulted in massive urban sprawl in Brussels (De Decker 2008). The emerging middle class progressively left old dwellings in nineteenth-century neighbourhoods and moved to the green outskirts. This process coincided with the arrival of international labour migrants from southern Europe, Turkey and Morocco from the late 1960s onwards. These migrants established themselves in the working-class neighbourhoods left behind by Belgians (Kesteloot and Van der Haegen 1997). The same neighbourhoods have clustered, until today, high shares of non-western migrants, most living in low-quality dwellings from the private rental market (De Winter and Musterd 1998).

Most of the public investment during this time was put into the tools to support homeownership and into infrastructure to accompany urban sprawl (Kesteloot and Cortie 1998). At the same time, investments in public housing remained limited.

The Brunfaut act, passed in 1949, was intended to address the lack of social public housing (Grosjean 2010; Kesteloot and Cortie 1998). Despite this act, public housing production remained marginal compared to private production (Broes and Dehaene 2016). Still, the act allowed the construction of some large public housing estates from the late 1950s through the 1970s (Grosjean 2010; Sterken 2013). These estates were inspired by modernist ideas, and a number of them were conceived by prominent Belgian modernist architects such as Renaat Braem and Willy Van Der Meeren. These estates were built in vast (and cheap) lands on the fringes of Brussels, while the public authorities laid down the infrastructure to connect them to the city centre (Sterken 2013). Following the modernist precepts, these estates were designed to function as independent and autonomous neighbourhoods—an ideal that was never achieved (Sterken 2013). Public estates were intended to be occupied by vulnerable households. As is the case of the public sector as a whole, these estates have functioned as a 'safety net' in the Belgian housing system (De Decker 2008; Winters and Elsinga 2008).

Parallel to this, private contractors had taken an important role in the economic landscape. As early as the 1950s, contractors began to organise and lobby housing legislation (Broes and Dehaene 2016). One example is the 1953 act for slum clearance. By this act, private firms benefited from a flexible legislation that allowed them to expropriate slums, demolish insalubrious dwellings and buy the land at cheap prices, without specifying the purpose of their investments in the area (Grosjean 2010). The liberal legislation led to what became known as ‘brusselisation’: a chaotic urban development driven by the speculation of private contractors. Much of the new constructions carried out in this context were related to transport infrastructure and the raising of office towers, but a number of projects were intended for housing (Grosjean 2010).

In particular, two contractors played a major role in the construction of housing estates: Etrimo S.A. and Ammelinckx S.A. These two companies specialised in the mass production of high-rise apartment slabs; together they built approximately 65,000 apartment units in Belgium through the 1960s and the 1970s (Broes and Dehaene 2016). These apartments were intended for homeownership by the lower social classes. They offered standardised, affordable dwelling in apartment slabs, but still equipped with all the ‘modern’ amenities.

These apartment slabs were replicated in Brussels over the years (Broes and Dehaene 2016, p. 103). In order to keep costs down, contractors preferred to integrate them inside existing transport and service facilities rather than invest in new infrastructure (Broes and Dehaene 2016). Therefore, we find isolated slabs inside the city, as well as agglomerations of slabs in vaster areas in the fringes. In this last case, they are often located next to existing public estates, where infrastructure had recently been laid. Production of private estates was much greater in scope than that of social housing. However, their functionalist, cost-efficient architecture is the subject of much criticism, especially in view of the high architectural quality of modernist estates (Broes and Dehaene 2016).

In sum, large housing estates in Brussels arose as a result of two parallel processes. On the one hand, public modernist estates—some with great architectural appeal—were conceived for social housing following the Brunfaut Act (1949). On the other hand, a greater number of private estates were produced by developers that benefited from liberal laws and were aimed at the homeownership by the lower middle-class.

7.3 Large Housing Estates in Brussels

7.3.1 *Definition and Selection of Large Housing Estates*

In this study, we defined a large housing estate as an architecturally coherent ensemble of mid- and/or high-rise buildings, constructed after World War II up until the 1980s, and containing at least 500 housing units. This threshold of 500 housing units was preferred to larger ones (1,000 in other chapters of this book)

because it better reflects the reality of Brussels' housing estates where those of 1,000 units are extremely rare. Large housing estates are scattered around the city and its fringes, rather than clustered together as is the case in other European cities. In fact, only a few housing estates in Brussels contain more than 1,000 housing units, making it not a very useful level of analyses.

In order to identify the large housing estates in Brussels, we used the most recent available data from the 2011 Census at the statistical sector level. This is the finest geographic level for which spatialised exhaustive data are available in recent years and that are comparable over time with older censuses. The 2011 Census is the first administrative census in Belgium: it combines data from the national population register, the land register (*Cadastre/Kadaster*) and other databanks at the individual and household levels. For this reason, data on population and dwellings are considered to be rather complete and of high quality.

The process of identifying large housing estates followed quantitative and visual steps. First, we selected all statistical sectors containing more than 250 housing units built in one single decade between 1946 and 1990. The choice of a lower number of housing units—250—was to capture large housing estates extending over adjoining sectors or built over different decades. Second, we proceeded to a visual inspection of the pre-selected sectors using an overlay of Google Maps and statistical sectors mapping as well as Google Earth's 3D tool (as depicted in Fig. 7.1). This allowed us to inspect whether the housing units selected with the census data were located in coherent ensembles of mid- and high-rise buildings, to identify the cases in which adjoining sectors made up for coherent estates of 500 housing units, and to check if any housing estate had been left out in the first quantitative selection. We excluded all sectors containing estates with more than 250 units which accounted for less than 50% of the sectors' population and with no coherent buildings in adjoining sectors. In the end of this process, we kept 59 statistical sectors (Fig. 7.2), corresponding to 30 ensembles that we denote as 'large housing estates'. Among these estates, 16 are composed of private housing only, whereas 11 are composed of public housing and three are mixed.

The main limitation of our selection process is that some statistical sectors are not entirely composed of large housing estates: they may also include other older houses. Still, only 13 of the selected sectors have more than 10% of their housing units built before 1945, and this share never exceeds 50%. We therefore assume that the presence of other types of dwellings does not influence the quantitative analysis of large housing estates.

7.3.2 The Configuration and Physical Aspects of Brussels' Large Housing Estates

Even though we can find isolated apartment towers inserted in the Brussels urban fabric, most large housing estates are located in the fringes of the city (Fig. 7.2). In the case of private estate projects, the peripheral location is explained by cheaper



Fig. 7.1 A private large housing estate in Brussels depicted in Google Earth's 3D tool, showing typical configuration of private large housing estates, with similar slabs inserted in a shared greenspace. *Source* Google Earth

land, but also by the appealing prospect for the lower middle class at the time of an affordable suburban property easily connected to the city centre (Broes and Dehaene 2016). As for some notable social housing estates (e.g. Cité Modèle/Modelwijk and Ieder Zijn Huis), the peripheral location also benefited from cheaper land but was part of the modernist project of creating independent and autonomous neighbourhoods, combining commerce, services, leisure and housing. Large housing estates in Brussels are typically composed of ensembles of high-rise apartment buildings separated by shared green areas.

Public housing estates are very diverse in terms of style and size. As mentioned above, some public estates were conceived as modernist projects and have a true architectural importance. This is the case of the Cité Modèle/Modelwijk conceived by prominent Belgian modernist architects led by Renaat Braem. The project of this complex (Fig. 7.3) was presented during the Brussels World's Fair in 1958 as a groundbreaking model of social housing embodying the principles of Modernism: industrial-style apartment towers, vast parks and common facilities (Sterken 2013).

Private housing estates, in contrast, were marked by functionalism rather than by modernism: the main concern in their conception was to minimise construction costs and keep the housing units at affordable prices. The few contractors in the large-scale property business made use of standardised blueprints and prefabricated construction elements to produce quasi-identical slabs (Fig. 7.4). The typical slab

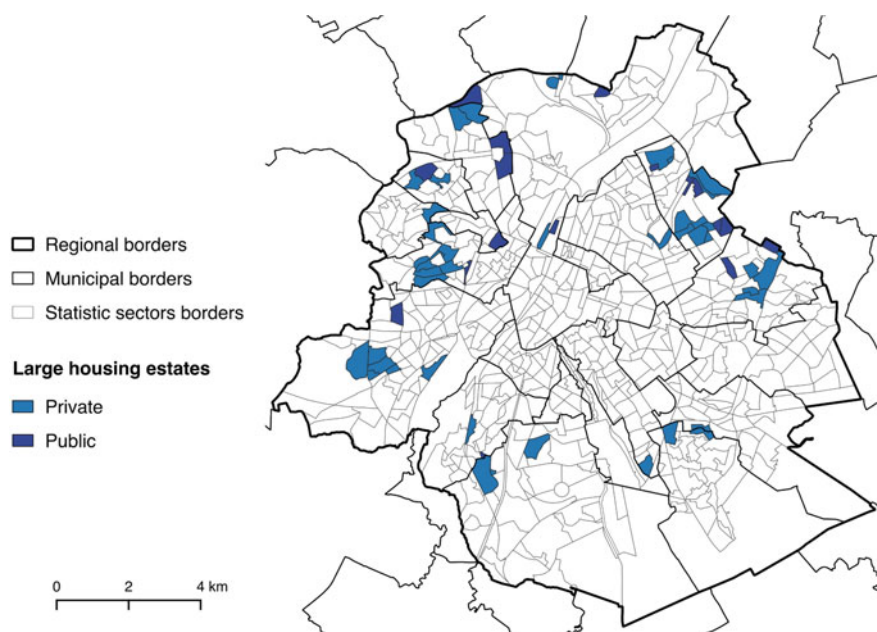


Fig. 7.2 Statistical sectors containing or composing large housing estates in Brussels. *Data Source* Census 2011 (Statistics Belgium)

contains approximately 150 apartments: they are composed of three columns side by side, with 12 to 13 floors and four apartments per floor. Several slabs scattered over green areas made up for vast private estates (Fig. 7.1).

7.4 Brussels' Large Housing Estates: Structures of Segregation?

7.4.1 *Demographic and Socioeconomic Evolution of Large Housing Estates (1991–2011)*

The share of the Brussels' population living in large housing estates is not considerably high. Our data—at the level of the statistical sectors—do not allow us to obtain an exact number of housing estate inhabitants (see Sect. 7.3). Still, a rough estimation can be obtained by examining the number of people in the statistical sectors of the selected estates who lived in housing units built between 1946 and 1990 (Table 7.1). In 2011, this number added up to 84,099, which is no more than 7.4% of the total Brussels population. Only 2.0% of *Bruxellois* live in public estates. If we consider the population in the large housing estates' statistical sectors (including the marginal older buildings that are encompassed), we notice that the



Fig. 7.3 La Cité Moderne: *maquette* presented at the Brussels Expo 1958 as a model of modern housing. Source © AAM/Foundation CIVA Stitching, Brussels

estates' population increased in absolute numbers, but remained stable relative to the city. At the same time over the whole period, it is also clear that more people live in private housing estates than in public ones. This is in line with the limited public investments in public housing and the dominance of the private housing market.

Concerning the tenure structure, public estates are logically dominated by rented apartments managed by public housing companies. In private estates, on the other hand, 57% of the housing units were owner-occupied in 2011. This is considerably high compared to the overall Brussels' level (38%). What is more, the high ownership rates seem to be a peculiarity of private housing estates that is not linked to the tenure structure of their location in the city: in sectors surrounding these estates, the rate is much lower (40%).

We analysed in a second step the socioeconomic composition of those living in large housing estates. To this end, we used data from the censuses of 1991, 2001 and 2011. As definitions and data quality vary from one census to the other (see Deboosere et al. 2003; Deboosere and Willaert 2004; The Eurostat Census Hub Metadata eu.eurostat/web/population-and-housing-census/census-data/2011), we selected indicators that are fairly comparable over the three census rounds. Despite their rather basic level, they offer a good overview of large housing estates' socioeconomic and demographic profiles:



Fig. 7.4 One tower of the Mettwie buildings, an example of a private apartment slab. *Source* R. Costa and H. de Valk

- age structure: share of the total population aged 0 to 15 and 65 and older;
- share of households composed of a single parent living with children;
- share of people with foreign nationality;
- employment rate: share of people in employment among the population aged 15–65¹;
- education level: share of the not-studying population aged 18 and older with maximum lower;
- secondary diploma (low education) and minimum tertiary diploma (high education).

Table 7.2 shows these indicators calculated for private, public and mixed housing estates. For contextual comparison, these indicators are also presented for the entire city, as well as for the statistical sectors surrounding large housing estates (in parentheses).

The age structure in large housing estates did not change considerably in the last decades. It is noteworthy, nevertheless, that both younger and older populations

¹The censuses of 1991 and 2001 relied on self-reported questionnaires, while the Census 2011 was based on administrative sources. In the former, categories of unemployment and inactivity could be interpreted by respondents in different ways. As a consequence, unemployment in the census data does not necessarily correspond to the official definition (working-age persons out of employment looking for a job). Employment, on the other hand, is more accurately comparable over different census rounds. We therefore chose employment over unemployment.

Table 7.1 Population in Brussels' large housing estates, 1991–2011: absolute numbers (share of the Brussels population in parentheses)

Large housing estate type	Population of statistical sectors assigned as large housing estates			Living in units built from 1946 to 1990 in 2011
	1991	2001	2011	
Public	28,825 (3.0%)	28,677 (2.9%)	31,270 (2.8%)	22,287 (2.0%)
Private	56,154 (5.9%)	57,000 (5.8%)	65,140 (5.7%)	50,577 (4.5%)
Mixed	12,322 (1.3%)	12,008 (1.2%)	12,996 (1.1%)	11,235 (1.0%)
Total large housing estates	97,301 (10.2%)	97,685 (9.9%)	109,406 (9.6%)	84,099 (7.4%)

Data sources Censuses 1991, 2001 and 2011 (Statistics Belgium)

(aged 0–15 and over 65) are overrepresented in public housing estates: each of these two age categories accounted for 23% of their inhabitants in 2011 (against 19% and 18% in Brussels, respectively). In contrast, private estates house a much older population: one-third of their inhabitants are older than 65. This is considerably high compared to the overall Brussels level, but also compared to the areas surrounding these estates (21%). The older population in private estates may be in fact the original owners of the apartments, who bought their units during the construction of the estate and did not move throughout their lives: this would explain the high levels of owner occupation in private housing estates.

Concerning household composition, public housing estates have a particularly high share of single-parent families. These account for 34% of the households of public estates (compared to 24% in Brussels), which reflects the socioeconomic vulnerability of their tenants.

It is difficult to produce comparative measures of the proportion of foreigners over time with the census data. The share of foreign nationals fell between 1991 and 2001 due to naturalisation waves that took place in the 1990s (see Renauld et al. 2016). The 2001 figures are not strictly comparable with those of 2011, as the Census 2011 also includes asylum seekers in the waiting list. Moreover, the indicator used here does not include descendants of migrants (second and third generation). It only reflects those who have a foreign nationality and moved to the country themselves.

Despite these limitations in definitions and comparability, we nevertheless start with analysing the share of foreigners in large housing estates compared to the overall Brussels levels for each of the three time points. Foreigners remained underrepresented in public estates: they account for only 17% of public housing tenants in 2011, and this proportion has even decreased somewhat since 1991. At the same time, whereas foreigners were underrepresented in private estates in 1991 (10%), their proportion doubled since then. This is not to say that public estates host fewer people from foreign origin: many migrants may have acquired Belgian nationality and thus not appear in our indicator. But this does suggest that new migrants may face more barriers in accessing public housing in large housing estates—probably due to the long waiting lists (Dessouroux et al. 2016)—while

Table 7.2 Socioeconomic indicators, 1991–2011: overall levels in Brussels, public, private and mixed large housing estates, and statistical sectors surrounding large housing estates (percentages in parenthesis)

	1991					2001					2011				
	Brussels	Public	Private	Mixed		Brussels	Public	Private	Mixed		Brussels	Public	Private	Mixed	
Aged 0–15	17.7	16.2 (17.7)	14.5 (16.6)	16.0 (16.8)		18.1	21.8 (18.7)	12.0 (18.2)	13.0 (16.9)		19.1	23.5 (20.7)	15.6 (19.4)	15.0 (17.4)	
Aged 65+	23.6	29.1 (26.0)	29.8 (28.3)	27.2 (26.7)		20.7	27.2 (23.3)	34.7 (23.9)	32.4 (24.0)		17.9	23.1 (19.3)	30.9 (21.4)	30.9 (21.7)	
Single-parent households	22.2	29.6 (21.1)	18.9 (22.5)	22.7 (19.3)		28.2	39.3 (28.2)	25.2 (30.1)	27.8 (27.1)		24.4	34.1 (23.4)	21.6 (25.3)	25.1 (22.5)	
Foreigners	28.5	18.7 (21.4)	11.1 (16.9)	17.1 (16.6)		26.3	16.6 (18.6)	14.2 (17.6)	17.8 (20.1)		32.5	17.4 (24.0)	20.5 (24.1)	25.5 (27.7)	
Employment rate	49.3	47.1 (51.8)	61.0 (54.7)	55.2 (55.9)		49.7	39.3 (51.8)	57.4 (53.1)	55.8 (57.1)		48.3	37.4 (50.6)	56.5 (51.7)	52.5 (54.0)	
Lower secondary education	62.5	74.5 (65.5)	58.5 (62.2)	50.2 (53.2)		42.7	62.6 (49.0)	46.6 (45.7)	35.6 (33.8)		38.9	58.4 (44.3)	42.8 (41.5)	32.8 (28.7)	
Tertiary education	18.9	9.6 (15.0)	19.2 (18.1)	27.0 (25.9)		33.6	15.2 (25.3)	27.0 (29.3)	38.2 (42.0)		35.5	17.2 (27.8)	28.6 (31.2)	39.9 (45.2)	

Data sources Censuses 1991, 2001 and 2011 (Statistics Belgium)

private estates seem to accommodate part of the recent international migration to Brussels.

Socioeconomic conditions, measured here by employment and education, also differ between public and private estates. While employment rates remained stable in Brussels around 49% since the 1990s, they fell considerably in public estates. In 2011, the employment rate in public estates was 27%. This is half the level in the areas surrounding public estates.

In terms of education, Brussels experienced, since the 1990s, a rapid change in educational composition: the share of inhabitants with lower education fell from 62 to 39%, while the proportion holding a university degree rose from 19 to 35%. Public housing estates did not follow these trends: educational levels increased at much slower rates and remained considerably low (lower education only fell from 75% in 1990 to 58% in 2011). Yet, it is noteworthy that education levels in public housing estates did increase (albeit slowly) at the same time that employment rates were falling. This could indicate that it is increasingly difficult for the lower classes to convert education into employment.

Moreover, one explanation of the socioeconomic deterioration of public housing estates is the fact that public housing stock did not increase significantly in Brussels during this period; therefore, the existing public estates increasingly fulfil the role of 'safety net' for an increasing number of deprived households (De Decker 2008). In contrast, the socioeconomic profile in private estates followed Brussels' overall trends: stable employment and increasing education levels. Nonetheless, the share of inhabitants with a tertiary diploma increased much slower. This is certainly due to the permanence of an older population in these estates.

It is important to note that the indicators calculated here for Brussels' public and private estates hide important differences within large housing estates of the same category. To illustrate this diversity, the 30 large housing estates are plotted in Figs. 7.5 and 7.6, respectively, by the share of foreigners and the employment rate in 2011 and the corresponding rate of change since 1991. These can be compared to Brussels' levels represented by the dashed lines.

The share of foreign nationals in 2011 ranges between 8 and 25% in public estates, and between 8% and 35% in private estates. But the rates of changes reveal a clear pattern in which the shares of foreigners are progressing much slower in public, and rapidly in private housing estates. With respect to employment rates, all public housing estates experienced negative rates of changes since 2011—in most cases much lower than the Brussels level. In the case of private housing estates, only one case has significantly deteriorated since 1991.

In sum, generally speaking, public and private large housing estates experienced different evolutions in the last decades. Private housing estates house an older population, many of them of apartment owners. The share of foreigners in private estates is low compared to the city average, but it is increasing rapidly. In contrast, the proportion of foreigners decreased somewhat in most public estates; and while the educational level of the inhabitants is increasing, employment levels at the same time have decreased considerably. It is not surprising that public housing estates in Brussels host a more vulnerable population—this is their function within the

Fig. 7.5 Share of foreigners in large housing estates: share in 2001 and percentage change since 1991 compared to Brussels' overall levels (dashed lines). *Data Source* Census 1991 and 2011 (Statistics Belgium)

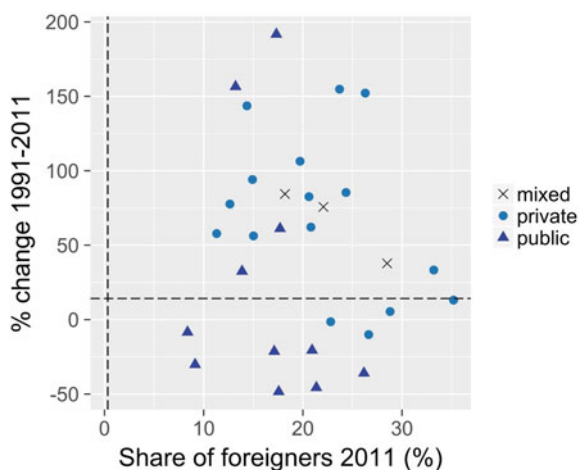
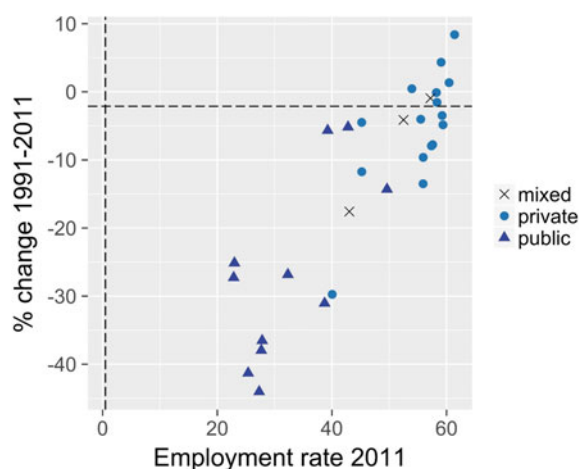


Fig. 7.6 Share of employed people aged 15–65 living in large housing estates: employment rate in 2011 and percentage change since 1991 compared to Brussels' overall levels (dashed lines). *Data Source* Census 1991 and 2011 (Statistics Belgium)



Belgian housing policy. However, the deterioration of socioeconomic conditions in these estates indicates that they are being more and more often allocated to more vulnerable households.

7.4.2 *Large Housing Estates' Impact on Ethnic and Socioeconomic Segregation in Brussels*

Because of their large scope and their particular evolution, large housing estates can potentially shape concentration patterns and influence segregation levels in the city. Figures 7.7 and 7.8 show the concentration patterns of foreigners and employment

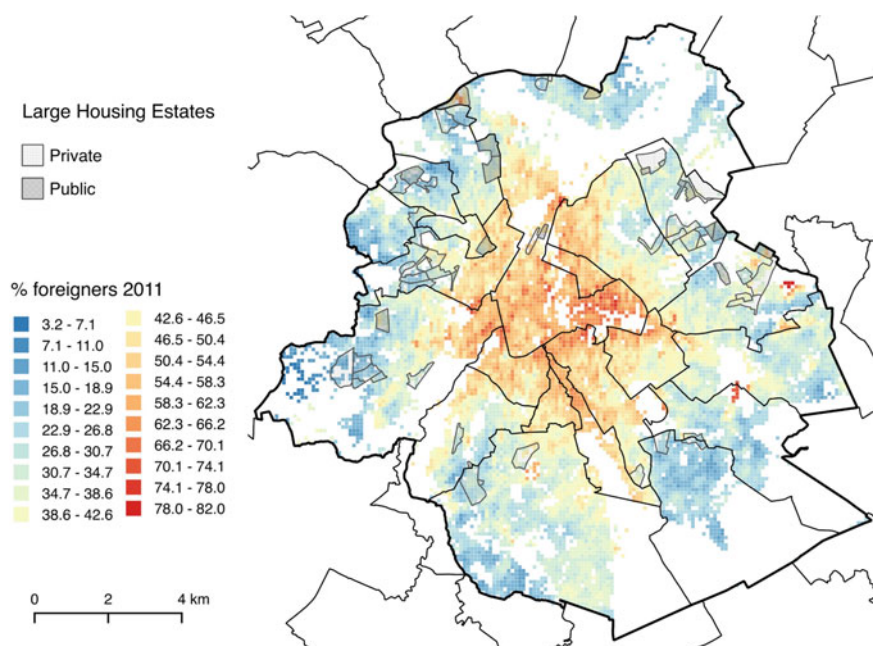


Fig. 7.7 Share of foreign-born people in 2011 among the 400 nearest neighbours (gridded data). Data Source Census 2011 (Statistics Belgium)

in Brussels. The maps were made at the level of $100\text{ m} \times 100\text{ m}$ grids with geo-coded data using a nearest-neighbour approach²: they depict the proportion among the 400 nearest neighbours that are foreign-born (Fig. 7.7) and employed (Fig. 7.8). This allows us to attain a geographic level that is finer than the statistical sectors.

It is in the central neighbourhoods of Brussels that ethnic and socioeconomic segregations overlap. In particular, the nineteenth-century neighbourhoods west from the city core concentrate high shares of foreigners (often surpassing 50% of the nearest neighbours) and very low employment rates (lower than 30% of the neighbours of working age). As mentioned in Sect. 7.2, these areas are dominated by the lowest-quality dwellings and have long hosted labour migrants (De Winter and Musterd 1998; Kesteloot and Van der Haegen 1997).

Large housing estates, in contrast, are located in the fringes of the city. As the gridded data in Fig. 7.7 show, large housing estates do not concentrate high shares of migrants compared to their surroundings and certainly not compared to the

²The maps were elaborated within the research project 'Residential segregation in five European countries' (ResSegr), financed by JPI Urban Europe, and in collaboration with Statistics Belgium. They were developed based on the geo-located data from the Census 2011 and using the EquiPop software (Östh et al. 2015)

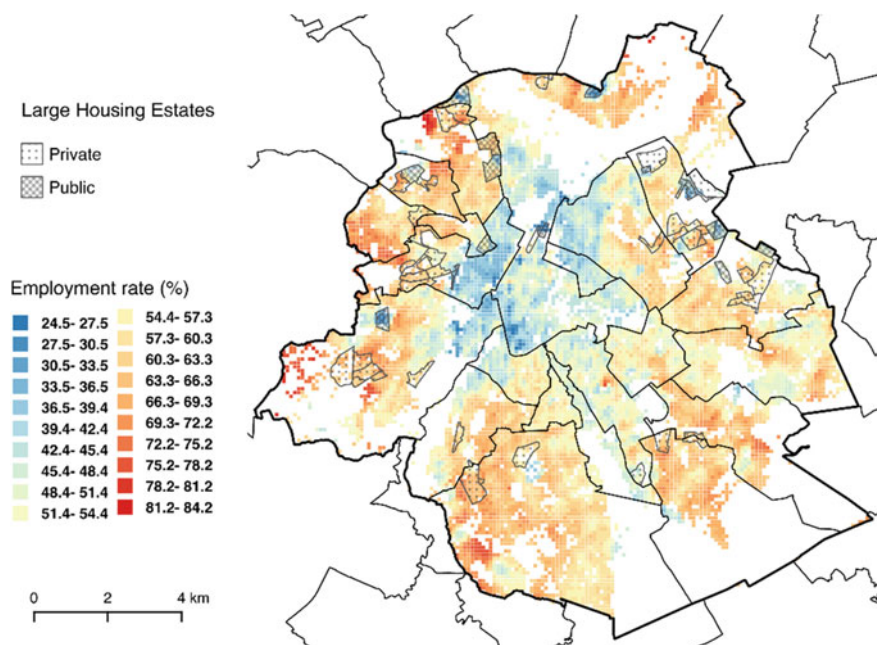


Fig. 7.8 Share of people aged 25–64 in employment in 2011 (employment rate 2011) among the 400 nearest neighbours (gridded data). *Data Source* Census 2011 (Statistics Belgium)

central neighbourhoods. In the case of employment, public estates do have lower rates compared to their surroundings, as one could expect. However, for private estates, employment levels tend to be close to that of their surrounding areas. In sum, the maps suggest that large housing estates do not play a major role in the segregation patterns of Brussels as a whole. Only public housing estates seem to play a role in the socioeconomic disparities at the local level. Most of the ethnic and socioeconomic segregation happens in the old working-class neighbourhoods west of the inner city.

In order to assess large housing estates' impact on segregation levels, we calculated the dissimilarity index (DI) for foreigners and persons not in employment, with and without large housing estates (Table 7.3)³. The dissimilarity index is a traditional way to measure segregation levels. In our case, it compares the distribution of foreign nationals and persons aged 24–65 not in employment in a statistical sector to the overall distributions in Brussels. What interests us here is the relative change in the index value as we take public and private estates out of the

³As aforementioned, data on unemployment are not accurately comparable over different census rounds. Therefore, in the calculation of the dissimilarity indices we use 'persons not in employment' instead of 'unemployed': it refers to all working-age persons who do not have a job (either because they are unemployed or because they are inactive and not looking for a job).

Table 7.3 Dissimilarity indices for foreigners and persons not in employment, 1991–2001: overall levels in Brussels and percentage change in the index value as large housing estates are taken out of the calculation

	1991	2001	2011
<i>Foreign persons (with respect to Belgians)</i>			
Brussels	0.4002	0.2617	0.2289
without all large housing estates	–1.16%	–4.42%	–4.86%
without public large housing estates	+0.13%	–0.59%	–2.18%
without private large housing estates	–1.41%	–3.23%	–2.53%
<i>Working-age persons not in employment (with respect to employed persons)</i>			
Brussels	0.1709	0.1724	0.1537
without all large housing estates	–0.67%	–0.35%	–2.05%
without public large housing estates	+0.17%	–1.49%	–1.89%
without private large housing estates	–1.19%	+1.02%	0.00%

Data source Census 2011 (Statistics Belgium)

calculation. This change is a measure of housing estates' weight on ethnic and socioeconomic segregation. For example, if the relative change in the DI without large housing estates is –10%, this means that the absence of large housing estates decreases the segregation index by one-tenth; in other words, the presence of estates has a positive contribution to the overall segregation level.

DI values for foreigners are not comparable over time because of data issues; however, we can still observe the large housing estates' weight in segregation for each year. In 2001 and 2011, if all large housing estates are left out of the calculation, the DI decreases slightly: by 4.42% and 4.86%, respectively. This means that large housing estates do concentrate foreigners and account for some of the segregation in Brussels, although their weight is only limited. Interestingly, whereas the impact in 2001 came mostly from private housing estates (–3.23%), it was balanced in 2011 between private and public estates (–2.53 and –2.18%). In other words, public estates have had an increasing role in segregation levels.

Large housing estates have a smaller effect on segregation on the basis of employment (maximum –2% of the DI in 2011). It is noteworthy that the contribution of public estates to the overall employment segregation increased over time: it went from null in 1990 to –1.8% in 2011. This reflects the fact that public housing estates host an increasing proportion of unemployed.

In sum, large housing estates have a small influence on the overall levels of segregation in Brussels, most probably because they represent a small share of the housing stock. Public estates have some impact on segregation patterns at the local level and their importance in the segregation level on the basis of employment is increasing.

7.5 Challenges, Political Awareness and Public Intervention

Alongside the challenges related to socioeconomic aspects and social mix, large housing estates also face important challenges associated with their physical estate and their internal design.

The current physical state of Brussels' housing estates varies from case to case. As a general rule, the materials used in their constructions went through significant deterioration. Run-down façades have presented permeability issues leading to infiltration. Another problem is the instability of balcony guardrails, which do not comply with today's safety regulations. The primary motivations for renovation, when the means are available, are therefore to make façades watertight and to improve balcony security. When these interventions are undertaken, works often involve enhancing energy efficiency.

Another common problem in large housing estates is the lack of safety in the shared areas, which is a direct result of their urbanistic conception. The circulation of cars was kept away from housing estate neighbourhoods to provide shared greenspaces for leisure; as a consequence, there is little social control preventing criminality, especially at night.

As a general rule, spatial planning and housing policies in Brussels have not been specifically concerned with the situation of large housing estates. No large-scale programme to date has been targeted to renovation of large housing estates, safety problems or socioeconomic aspects. Instead, regional public policies⁴ have given priority to the 'revitalisation' of deprived neighbourhoods in the nineteenth-century belt (Dessouroux et al. 2016), which are densely populated and are often in a worse state (Kesteloot and Van der Haegen 1997).

In the lack of an integrated policy directed to large housing estates, their trajectories and their present conditions vary from case to case. Below we discuss the specific trajectories of public and private estates and the means through which regional policies affect their physical and socioeconomic state.

7.5.1 Public Large Housing Estates

As aforementioned, some public housing estates were conceived under modernist principles; however, the ideal of prosperous autonomous neighbourhoods was never achieved (Sterken 2013). Since the 1980s, policymakers seem to have become somewhat aware of this fact and concerned with the isolation of social

⁴Since the 1980s, spatial planning and housing policies in Belgium fall in the jurisdiction of regions (Winters & Elsinga 2008). The Brussels Capital Region possesses autonomy in the matters of public housing, urbanism and infrastructure, among others. Only private rent legislation is still regulated at the federal level, and it remains largely liberal.

tenants who had little interaction with other social profiles. Indeed, public authorities have since integrated new social housing units inside the urban fabric: new investments focused on renovation of existing houses and construction of small units inside neighbourhoods promote social mix. However, existing housing estates were not the object of large-scale programmes: they are dealt with case by case.

Public housing stock in Brussels is managed by 19 local housing companies (Sociétés Immobilières de Service Public—SISP) functioning under the umbrella of the regional social housing authority (Société du Logement de la Région de Bruxelles-Capitale—SLRB). The latter sets the rules in public housing, determines the criteria for their attribution and funds the renewal and construction of public units. In the case of the renewal of public estates, it is the local housing companies that apply for the SLRB funding. They set the priorities for renovation according to the needs in the dwellings they manage. As they operate at the local level, they are expected to have good knowledge of these priorities and the citizens' needs.

Although large housing estates were not specifically targeted by the SLRB nor the SIPS, many of them went through important renovation works in the last decades alongside other types of public housing. The SLRB directed most of its budget in the last decade for the renewal of the existing stock. It invested 500 million Euros between 2000 and 2017, from which many social large housing estates benefited. The works range from complete renovation of housing estates to targeted improvements (see Leroy 2012, 2014).

One example is the emblematic Cité Modèle/Modelwijk. By the initiative of the responsible SISP, Le Foyer Laekenois, this public estate has gone through an important transformation since 2004, with a budget of more than 10 million Euros (see Le Foyer Laekenois 2014). The project was based on in-depth studies of the physical and social conditions and with attention to the evolution of tenants' needs since its construction in the 1960s. The works involved the thorough renovation of the existing buildings, the construction of new housing units with an architectural design complementary with the modernist ensemble and the reorganisation of the common area by a landscapist. Also, shared space was improved with the creation of a new common restaurant, a nursery and sport facilities at the disposal of the residents.

Whereas the physical state of public estates improved in the last years, their socioeconomic conditions have been deteriorating (as shown in Sect. 7.3). Public housing units are allocated according to a priority system: the more vulnerable the household, the higher the priority. For example, a single parent with a disabled child cumulates more 'priority points' than a household with a dependent elderly person. Whereas the demand for social housing is on the rise, the supply has not followed (Romainville 2010): today, only 8% of the total housing stock in the city is public; there are as many households on the waiting list for social housing as there are public housing units—around 40,000 (Dessouroux et al. 2016). In this context, public housing units are more and more often attributed to the priority (most vulnerable) households. At the same time, access to the private rental market becomes more difficult for impoverished households as the rental prices increase (Dessouroux et al. 2016). Rental prices are significantly higher in the private

market: 604€ on average for a two-bedroom apartment, against 234€ in public housing units (see Brussels Institute for Statistics and Analysis <https://monitoringdesquartiers.brussels>).

In sum, despite the investments in the physical state of public estates, public housing in Brussels increasingly has the role of social safety net. If demand continues to rise faster than available offerings, one can expect that units in public housing estates will be attributed to an increasingly deprived population, making social mix less probable in these estates.

7.5.2 *Private Large Housing Estates*

Although the construction of private large housing estates had ceased by the 1980s, there has never been a will to reject the existing ones. Today, these apartments still do well in the real estate market. Their physical state and socioeconomic conditions are variable and depend on the neighbourhoods in which they are located.

Because the private sector is liberal, the physical condition of large buildings has depended on the way they were managed by their owners (or co-property), rather than on public initiatives. Their renovation depends on the owners' financial conditions and on their capacity to find consensus among the large number of residents for the execution of works. Some private estates went through important renovations and maintained good physical condition, especially in affluent neighbourhoods; others are in a visibly worse state.

Apartment owners in large housing estates can apply for public grants for renovation, insulation or embellishment. However, they do not benefit from special grants or large-scale renovation programmes. This is because a high share of public investment in the physical state of private housing is directed to the deprived central neighbourhoods within the Area for Reinforced Development of Housing and Renewal (*Espace de Développement Renforcé du Logement et de la Rénovation, EDRLR*) (Romainville 2010; Dessouroux et al. 2016). Inhabitants of the EDRLR benefit from higher renewal grants and from area-based programmes conceived through citizen participation (neighbourhood contracts) (see Romainville 2010; Romańczyk 2015). As large housing estates fall outside the EDRLR area (except for one), they do not benefit from any special rule for public intervention. Furthermore, the applicable grants represent only a partial support of the works' costs: their realisation still lies on the large housing estates' owners' capacity to mobilise and finance them.

Regional policies have even less reach in the socioeconomic conditions of private housing estates. Because the private rental market falls into federal jurisdiction and is largely deregulated, the region has little or no way to promote social mix inside the private-owned apartment buildings.

7.6 Conclusion

Large housing estates in Brussels emerged under a particular context of national housing policies, marked by homeownership support, lack of spatial planning, very liberal legislation in the construction business and low investments in public housing. These conditions allowed the construction of a limited number of public estates and a large number of private estates composed of standardised buildings.

In Brussels, we can find many examples of mid- and high-rise apartment buildings built after World War II. In this study, we focused on the large ensembles with more than 500 housing units. As these ensembles concentrate an important number of households, they potentially have an impact on segregation patterns in the city as well as on the residents' lives.

The 30 large housing estates identified in this study account for a relatively low proportion of the Brussels population: around 7% in 2011, of which only 2% are in public estates. Moreover, large housing estates are not clustered together, but scattered around the fringes of the city. These two features seem to limit housing estates' role in overall segregation levels and patterns.

In fact, our analyses show that Brussels' large housing estates have a modest impact on segregation on the basis of nationality and employment. Most of the ethnic and socioeconomic segregation in Brussels happens in dense central neighbourhoods located in the nineteenth-century belt. These neighbourhoods have traditionally hosted migrants in vulnerable conditions and they continue to do so. The reason why new migrants end up in these neighbourhoods rather than large housing estates may be attributed to the housing market in these areas, which offers cheap prices in the private rental market (albeit in the lowest-quality dwellings). In addition, long-established networks may play a role in migrants' trajectories.

Nevertheless, public estates seem to contribute to local disparities. Our analyses suggest that public housing estates have concentrated an increasingly deprived population, considerably different from their surrounding areas. As the supply of public housing has not accompanied the increasing demand, public housing units are more and more often filled by the most vulnerable households. This situation is not likely to change in the next years.

Private large housing estates were originally intended for ownership by the lower middle class. Today, these estates still have a majority of apartment owners, and one-third of their inhabitants is older than 65. It is thus reasonable to assume that a considerable share of units in private estates is still occupied by the original owners. If this is the case, we can expect that these apartments will progressively fall into the real estate market in the next decades. Private housing estates can therefore change quickly in the near future. In fact, our study shows that the share of migrants in these estates has already increased rapidly since the 1990s. If this trend continues, private large housing estates will perhaps have more significant weight in segregation.

In sum, Brussels' large housing estates are spatially scattered and have only a limited impact on the concentration of deprivation and foreign nationals. However, the trends identified in our study indicate that large housing estates can become important socioeconomic fractures at the local level. Although policymakers have seemingly acknowledged the potential problems of social housing estates since the 1980s, the policy strategy was to direct new investments in social housing to small housing units in mixed areas. The existing large housing estates have not been part of an integrated agenda in the regional housing policies. Although this is not likely to change in the near future, policies encouraging a social mix in large housing estates could anticipate their potential role in spatial inequalities and social cohesion of neighbourhoods.

Acknowledgements The authors thank Cécile Dubois, historian of the architectural heritage of Brussels, for her insights on how the perception of housing estates evolved among policymakers and the general public. They also thank Guillaume Sokal, architect at Brussels regional social housing authority (SLRB), for his clarifications on the complex structure of public housing in Brussels and on the system of public funds and grants. Gregory Hye, architect with experience in renovation of private housing, provided technical and practical information on renovation of private housing estates.

This work is part of and financed by the JPI Urban Europe project 'Residential segregation in five European countries: a comparative study using individualised scalable neighbourhoods' (ResSegr). More information is available at www.residentiaalsegregation.org.

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